Economics 101 Midterm Exam #2

November 15, 2001

Instructions

Do not open the exam until you are instructed to begin. You will need a #2 lead pencil. If you do not have one you will need to borrow one from Professor Wallace or one of the TAs. Before you may began the exam everyone must take the following steps.

(1) Use the #2 lead pencil to fill in you name on the answer sheet.
(2) Fill in your student number on the answer sheet.
(3) Fill in your TA Code in column A of the space allotted for "Special Codes" on the answer sheet.
      a. If your TA is John Gordanier then your TA Code is 1.
      b. If your TA is Hua Liu then your TA Code is 2.
      c. If your TA is Guoqing Ma then your TA Code is 3.
(4) Fill in your Exam Code in column B of the space allotted for "Special Codes" on the answer sheet
      a. If your exam is green then your Exam Code is 1.
      b. If your exam is white then your Exam Code is 2.

The exam consists of 40 multiple-choice questions. All questions are equally weighted and there is a single best answer for each question. The exam is scheduled to end at 3:45 pm. Students handing their exams in more than 3 minutes past the end of the scheduled exam session will have 3 points deducted from there final score (on the 100 point scale). After the 3 minute mark the penalty will increase by 10-points for each additional minute the exam is late until the 8 minute mark when the exam grade will go to zero.

You are encouraged to hold onto the hard copy of your exam so that you can check your answers. An answer key for this exam will be made available sometime later this evening, but the tests will not be handed back until discussion sections meet again on November 29th and 30th. In keeping with the previously state policy, we will not except early email request for exam scores.

1. A firm has achieved economic efficiency when
   a. It has fully depreciated all of its assets
   b. It has achieved nirvana
   c. It is producing a given level of output at the lowest cost.
   d. It has finally reached the long-run

2. The long-run defined as
   a. A period long enough so that at least one factor of production is variable.
   b. A period long enough so that al least one factor of productions is fixed.
   c. A period long enough for a firm to figure out how to maximize profits.
   d. A period long enough that all factors of production can be varied.

3. The production function describes
   a. the economically efficient way to produce
   b. the maximum level of output associated with a given level of inputs
   c. the level of output associated with cost the cost minimizing choices of inputs.
   d. the effects of duality

4. An institution that hires productive resources and organizes them to produce and sell goods is called
   a. a union
   b. a factory
   c. a firm
   d. an industry

5. Which situation is most likely to exhibit diminishing marginal returns to labor?
   a. A factory that obtains a new machine for every new worker hired.
   b. A factory that hires more workers and never increases the amount of machinery.
   c. A factory that increases the amount of machinery and hold the number of workers constant.
   d. None of these are likely to result in diminishing marginal returns to labor.

6. If the production function has the following technology, $Q = K + L$, what kind of returns of scale does the technology exhibit?
   a. increasing returns to scale
   b. decreasing returns to scale
   c. constant returns to scale
   d. economies of scope
   e. diseconomies of scale

7. Lisa consumes only pizzas and burritos. At her optimal consumption bundle, Lisa's marginal utility of pizza is 20 and her marginal utility of a burrito is 10. The price of pizza is $4. What is the price of a burrito?
   a. $4
   b. $2
   c. $8
   d. $1
   e. The price cannot be determined with the information supplied.

8. Suppose that Ingrid needs an equal number of right and left shoes to get any happiness. She has an income of $75 to spend only on shoes. The price of left shoes is $1, but the price of right shoes is $14. What is the optimal consumption choice?
    a.   63 left shoes, and 1 right shoes.
    b.   10 left shoes, and 10 right shoes
    c.   3 left shoes, and 3 right shoes
    d.   5 left shoes, and 5 right shoes
    e.   not enough information to determine

9. Suppose that the interest rate paid to savers increases. As a result, Tom wishes to consume more today. This suggests that, for Tom,
    a.   The substitution effect is greater than the income effect.
    b.   Future consumption is a luxury
    c.   The income effect is greater than the substitution effect.
    d.   Consumption today is an inferior good.
    e.   The income effect is equal to the substitution effect.

10. Assume that a firm's production function is $Q = \min\{K, L\}$. Given that r is the price of capital and w is the price of labor, which of the following represents the firm's long-run cost function?

    a. $C(Q) = \left(\dfrac{w}{r}\right) \cdot Q$

    b. $C(Q) = \left(\dfrac{r}{w}\right) \cdot Q$

    c. $C(Q) = w \cdot r \cdot Q$

    d. $C(Q) = (w + r) \cdot Q$ - D is correct

The following figure shows how output varies with the quantity of labor employed by a firm, holding the capital stock constant.
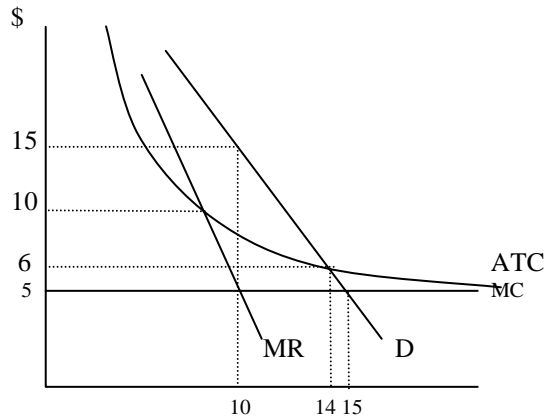
Figure 1
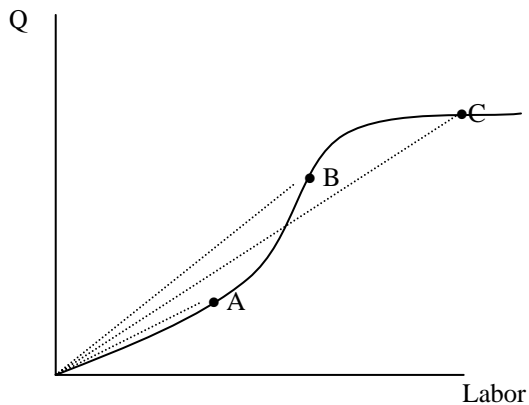
11. Refer the Figure 1 above. Rank the labor output combinations in order of AVC (highest to lowest) assuming that capital and labor are the only factors of production.
    a.   A>C>B
    b.   B>C>A
    c.   C>B>A
    d.   A>B>C
    e.   C>A>B

12. Refer to Figure 1 above. At which point is MC the highest?
    a. A
    b. B
    c. C
    d. Impossible to tell

13. Suppose the total cost of producing T-shirts can be represented by TC = 30 + 4q. What is the average variable cost of producing 5 T-shirts.
    a. 4
    b. 6
    c. 10
    d. 50
    e. 2

14. Tim operates a Lemonade stand. The price of lemons is $1/pound and sugar is $2/pound. He can earn $30 working at the juice stand across the street if he wasn't running his lemonade stand. To produce 10 gallons of lemonade, he needs 5 pounds of lemons and 5 pounds of sugar, but he already has 3 pounds of sugar. What are the total economic costs of selling 10 gallons of lemonade.
    a. $15
    b. $9
    c. $39
    d. $45
    e. $30

15. If the average cost of producing a good is increasing, which of the following must be true?
    a. AFC are rising
    b. AVC is falling
    c. AFC is constant
    d. MC>ATC
    e. MC is increasing

16. The cost of publishing books is cheaper for magazine publishers than for other firms, this suggests the presence of
    a. the law of diminishing returns
    b. economies of scale
    c. economies of scope
    d. returns to scale
    e. perfect competition

17. If a firm is in a perfectly competitive industry, which of these is <u>NOT</u> true
    a. The firm's MR is equal to the market price
    b. The firm is a price taker
    c. The firm faces an inelastic demand curve
    d. There is free-entry and exit
    e. The firm will produce at a point where MR=MC

18. In the long-run, profits equal zero in a competitive market because of
    a. increasing returns to scale
    b. identical products being produced by all firms
    c. the availability of information
    d. free entry and exit

19. Which of the following is <u>NOT</u> a barrier to entry
    a. One firm in an industry with falling ATC across the relevant range of output
    b. A patent on a product being sold
    c. The ability to charge a price that is above marginal cost
    d. Receiving a government authorized monopoly.

20. Suppose you own an orchard. You have fixed costs of $8. At the present rate of output, 100 apples, the marginal cost is $0.17 per apple, AVC= $0.16, and price is $0.15. Assuming that this is a perfectly competitive industry, which of the following is true?
    a. You are not profit maximizing
    b. In the short-run you should shut-down
    c. Profits are positive
    d. Your total costs are $25

21. The short-run supply curve for a firm in a perfectly competitive industry is
    a. the same as its marginal cost curve above the shutdown point
    b. the same as the marginal revenue curve above the shutdown point
    c. the same as its demand curve
    d. horizontal at the going price.

22. In a perfectly competitive industry in the short-run, as market demand increases,
    a. the perfectly competitive firm increases its output and its profits increase.
    b. the perfectly competitive firm increases its output and its profits decrease.
    c. the perfectly competitive firm decreases its output and its profits decrease.
    d. the perfectly competitive firm decreases its output and profits increase.

23. A particular industry is characterized in the long-run by lots of firms, each of which earn zero long-run profits. However, each firm produces a product that varies in quality. This industry is best described as
    a. perfect competition
    b. monopoly
    c. oligopoly
    d. Cournot
    e. monopolistically competititive

24. A monopolist has a cost function $C(Q) = 10 + \dfrac{Q^2}{2}$ (so that $MC(Q) = Q$) and faces the inverse demand curve of $P = 20 - 2 \cdot Q$. What is the profit maximizing price and quantity for this monopolist?
    a. price = 8, quantity = 4
    b. price = 12, quantity = 4
    c. price =10, quantity = 5
    d. price = 14/3 , quantity = 20/3
    e. none of the above

25. A monopolist's profit maximizing decision differs from that of a firm in a perfectly competitive market in what way? (i.e. which of these is true for a monopolist, but not for a perfect competitor)
    a. MR=ATC for a monopolist
    b. MC=ATC for a monopolist
    c. MR>MC for a monopolist
    d. P>MR=MC for a monopolist
    e. MC>P for a monopolist

Use the figure below to answer question 26.

Figure 2

$$
\begin{array}{l}
\$ \\
\\
15 \\
10 \\
6 \\
5 \\
\end{array}
\qquad
\begin{array}{l}
\text{ATC} \\
\text{MC}
\end{array}
$$

MR   D

10   14 15

26. Look at the monopoly in the figure above. What is the deadweight loss associated with this monopoly?
    a. 50
    b. 18
    c. 25
    d. 12.5
    e. Not enough information

27. Which of the following firms has the smallest associated DWL?
    a. a firm in a perfectly competitive industry
    b. a perfect price discriminating monopolist
    c. a monopolist regulated at p=ATC
    d. Both A and B
    e. Answers A, B, and C

28. In a perfectly competitive industry, if P>ATC we know
    a. The firm should shut-down in the short-run
    b. In the long-run firms will enter the industry
    c. P>MC
    d. ATC<AVC
    e. Both B and C

29. For a monopoly, marginal revenue is less than price because
    a. the firm is a price taker
    b. the firm must lower price if it wishes to sell more output
    c. the firm can sell all of its output at any price
    d. the demand for the firm's output is perfectly elastic
    e. the firm has no supply curve

30. Which of the following will prevent a monopolist from being able to perfectly price discriminate
    a. resale is impossible
    b. demand is very inelastic
    c. demand is very elastic
    d. marginal cost is upward sloping
    e. obtaining information about each buyer's willingness to pay is impossible

31. If a monopolist with a always decreasing ATC is regulated at price=MC, which of the following is <u>NOT</u> true
    a. The monopolist would like to leave the industry in the long run
    b. The monopolist will earn negative economic profits
    c. The monopolist will produce where MC crosses demand
    d. AFC decreases as quantity increases
    e. The monopoly creates a DWL, but not as much as an unregulated monopoly

32. Market power is best defined as
    a. the ability to exert ones will in determining market trends
    b. the ability to set a price above marginal cost and earn a profit.
    c. the ability to stay in business at a price below the shutdown point.
    d. the ability to invest in capital and increase plant size.

33. Which of the following is always true in a Nash equilibrium
    a. no one has an incentive to deviate
    b. total welfare of players is maximized
    c. total welfare of players is never maximized
    d. Both a and b
    e. Both a and c

Consider the following payoff matrix (Player A's actions are either up or down or sideways)

	Left	Right
Sideways	1,0	4,1
Up	2, 5	0,4
Down	0, 6	3,5

34. Suppose that Player A and player B must simultaneously choose an action, with payoffs defined above. What are the pure strategy Nash Equilibria to this game?
    a. (S,L) and (U,L)
    b. (U,L) only
    c. (U,L) and (S,R)
    d. (D,R) only
    e. (U,L) and (D,R)

35. Suppose that game is played sequentially with Player B choosing first, Player A observing B's action, and Player A choosing. What is the pure payoff associated with the Nash Equilibrium of this sequential game.
    a. (2,5)
    b. (1,0)
    c. (0,6)
    d. (4,1)
    e. (3,5)

36. Perfect competition and monopolistic competition are similar in that both market structures are characterized by
    a. price-taking behavior by firms
    b. a homogeneous product
    c. no barriers to entry
    d. very few firms
    e. long-run profits

37. A group of firms that has entered into a collusive agreement to restrict output and increase prices and profits is called a(n)
    a. compliance
    b. cartel
    c. duopoly
    d. oligopoly

38. In which of the following markets is it more likely that a cartel would form and persist
    a. A market were a small number of firms, selling identical products, interact over an indefinite number of periods.
    b. A market were a small number of firms, selling identical products, interact over a finite number of periods.
    c. A market were a large number of firms, selling differentiated products, interact of an indefinite number of periods.
    d. A market were a large number, selling identical products, interact over a indefinite number of periods.

39. Which of the following are NOT mechanisms used to maintain cartels?
    a. Most favored nation clauses
    b. Violence
    c. Cheating
    d. Easy Riding

40. Rank the following industry structures based quantity of output produced by a typical firm.
    a. perfect competition>monopoly>Cournot
    b. Cournot>perfect competition>monopoly
    c. perfect competition>Cournot>monopoly
    d. monopoly>Cournot>perfect competition
    e. Cournot>Monopoly>perfect competition

We decided we didn't like question 40 – all answers were excepted.